

C l a i m s

5 1. A process for the preparation of a glucan product from yeast which comprises:

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10 (a) contacting a branched β -(1-3)-glucan having β -(1-3)-linked and β -(1-6)-linked chains therein with a β -(1-6)-glucanase under conditions such that the resulting glucan is comprised of β -(1-3)-linked glucose units and is essentially free of β -(1-6)-linked chains.

15 2. A process according to claim 1 wherein said β -(1-6)-glucanase is obtained from the groups of microorganisms consisting of Trichoderma longibrachiatum, Trichoderma reesei, Trichoderma harzianum, Rhizopus chinensis, Gibberella fujikuroi, Bacillus circulans, Mucor lilmalis and Acinetobacter.

20 3. A process in accordance with claim 1 wherein said β -(1-6)-glucanase is obtained from Trichodermia harzianum.

25 4. The process of claim 1 wherein the particulate β -(1-3)-glucan is derived from yeast of the family Saccharomyces.

5. The process of claim 4 wherein the particulate β -(1,3)-glucan is derived from Saccharomyces cerevisiae.

30 6. The process of claim 1 wherein said insoluble particulate β -(1-3)-glucan is prepared by the process comprising:

35 (a) alkali-extracting suitable glucan-containing yeast cells with a suitable extractive aqueous alkali solution under suitable conditions to provide a first insoluble yeast residue.

(b) hot alkali-extracting said first insoluble yeast residue

with a suitable extractive aqueous alkali solution under suitable extraction conditions wherein the hot alkali extraction is performed at least 2 times to provide a second insoluble yeast residue and recovering the insoluble yeast residue after hot alkali extraction; thereafter

(c) washing said second insoluble yeast residue with a suitable hydrolyzing acid under suitable conditions with water at a pH in the range of from about pH 4 to about pH 7 thereby providing a third insoluble yeast residue and recovering said third insoluble yeast residue after the wash;

(d) hydrolyzing said third insoluble yeast residue under mild acidic hydrolysis condition wherein the acid hydrolysis is performed at least 3 times to provide a fourth insoluble yeast residue and recovering the yeast residue after each acid hydrolysis; thereafter

(e) boiling said fourth insoluble yeast residue under suitable conditions in water wherein the boiling of said fourth insoluble yeast residue is performed at least 2 times to provide a fifth insoluble yeast residue and recovering the insoluble yeast residue after each boiling; and

(f) boiling said fifth insoluble yeast residue under suitable conditions in ethanol wherein the boiling in ethanol of said fifth yeast residue is performed at least 2 times to provide a sixth insoluble yeast residue and recovering the insoluble yeast residue after each boiling; thereafter

(g) washing said sixth insoluble yeast residue under suitable conditions with water wherein the washing of said sixth yeast residue is performed at least 2 times to provide a yeast glucan and recovering the insoluble yeast residue after each wash.

7. The product of the process of claim 1, being characterized as a branched β -(1-3)-glucan with β -(1-3)-linked sidechains being attached by a β -(1-6)-linkage and being essentially free of β -(1-6)-linked chains.

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8. The product of the process of claim 6, being characterized as a branched β -(1-3)-glucan with β -(1-3)-linked sidechains being attached by a β -(1-6)-linkage and being essentially free of β -(1-6)-linked chains.

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9. An insoluble particulate yeast glucan especially from the yeast family Saccharomyces and particularly from the yeast species Saccharomyces cerevisiae being characterized as a branched β -(1-3)-glucan with β -(1-3)-linked sidechains being attached by a β -(1-6)-linkage and being essentially free of β -(1-6)-linked chains.

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10. A process for the production of a solubilized β -(1-3)-glucan particle from yeast, especially from the yeast family Saccharomyces and particularly from the yeast species Saccharomyces cerevisiae, which comprises contacting an insoluble glucan from the yeast family Saccharomyces having a backbone of β -(1-3)-linked glucose units with at least one β -(1-3)-linked side chain of at least 1 glucose units attached thereto with a solubilizing agent.

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11. A process in accordance to claim 10 wherein said solubilizing agent is formic acid and said insoluble glucan is contacted with said solubilizing agent at a temperature in the range of from 70 to 90°C.

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12. The solubilized β -(1-3)-glucan product of the process of claim 11.

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13. A process for the preparation of a feed glucan product from yeast, especially from the yeast family Saccharomyces and particularly from the yeast species Saccharomyces

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part 5

cerevisiae, which comprises:

(a) contacting the feed grade yeast glucan being a branched β -(1-3)-glucan having β -(1-3)-linked and β -(1-6)-linked chains therein with a β -(1-6)-glucanase under conditions such that the resulting glucan is comprised of β -(1-3)-linked glucose units and is essentially free of β -(1-6)-linked chains.

10 14. The process of claim 13 wherein said glucan is derived from Saccharomyces cerevisiae.

15 15. The process of claim 14 wherein said feed grade glucan is prepared by the process comprising:

(a) contacting yeast cell walls with an aqueous alkaline solution under suitable conditions to effect the extraction of proteins and lipids therefrom;

20 (b) separating the resulting extracted yeast cell walls from said aqueous alkaline solution;

(c) washing the resulting separate yeast cells so as to further remove solubilized cell wall components therefrom;

25 (d) neutralizing the washed yeast cell walls; and

(e) pasteurizing the neutralized, washed cell walls and thereafter drying the resulting pasteurized, neutralized, 30 washed cell walls.

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16. The product of the process of claim 13, being characterized as a branched β -(1-3)-feed grade glucan with β -(1-3)-linked sidechains being attached by a β -(1-6)-linkage and being essentially free of β -(1-6)-linked chains.

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